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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,307	06/23/2003	Masumi Kubo	4034-36	7959
23117	7590	09/29/2004	EXAMINER	
NIXON & VANDERHYE, PC				VU, PHU
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ARLINGTON, VA 22201-4714				ART UNIT
				PAPER NUMBER
				2871

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/601,307	KUBO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Phu Vu	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 23 June 2003.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-19 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-13 and 19 is/are rejected.  
 7) Claim(s) 14-18 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1-6, 9-12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6-7 of U.S. Patent No. 6710825, further in view of Ahiro et. al US Patent 6661488 and Kim US Patent 6342876. Patent No. 6710825 claims a first substrate, second substrate, a liquid crystal layer between the first substrate and the second substrate, and a plurality of picture element regions for producing a display. Also a plurality of picture element regions defined by opposing electrodes on opposite substrates, (ie. "a counter electrode supported by the second substrate and opposing the picture element electrode with the liquid crystal layer sandwiched therebetween"), plurality of unit solid portions (openings), wherein a plurality in of liquid crystal domains by a electric fields, and each liquid crystal

domain taking a radially oriented direction. A matrix structure (lattice) is claimed in claim 7, therefore a plurality of rows and columns is inherent to the reference.

Regarding claim 2, a picture element region with shape in a first longitudinal direction and a second width direction is inherent to a lattice structure.

Regarding claim 5, claim 14 of the patent claims a plurality of unit solid portions (openings) with rotational symmetry. Regarding claim 6, claim 16 of the patent claims unit solid portions (openings) of circular shape.

Regarding claim 9, the patent claims a side face of the protrusion has orientation-regulating force for orienting liquid crystal molecules of the liquid crystal layer in the same direction as an orientation regulating direction obtained by the inclined electric fields (see claim 19).

Regarding claim 10, the patent claims a protrusion in each of the openings, which encompasses a region including the center.

Regarding claims 11 and 12, the patent claims a protrusion (orientation regulating structure) that has an orientation –regulating force for orienting liquid crystal molecules of the liquid crystal layer in the same direction as an orientation regulating direction obtained by the inclined electric fields (see claim 19). One of ordinary skill in the art would interpret this to be a force mechanical in nature (not electromagnetic) therefore it is inherent that the orientation regulating structure will exert a force in the presence of the electric field and when there is no applied voltage.

Regarding claim 19, the patent also claims a plurality of picture element regions and in at least one of the picture element regions a switching element connected to the

picture element electrodes. A switching element connected to the picture element electrodes via a plurality of connection paths and a counter electrode supported by the second substrate (see claim 6).

The only limitation unclaimed in US Patent 6710825 is a liquid crystal layer that takes a vertical alignment layer in the absence on an applied voltage and a polarity of the voltage applied across the liquid crystal layer in a first picture element region among the plurality of picture element regions different from a polarity of a voltage applied across the liquid crystal layer in a second picture element region that belongs to the same row as that of the first picture element region and belongs to a column adjacent to a column which the first picture element region belongs in each frame. Ahiro discloses a vertical alignment (VA) mode liquid crystal device whose liquid crystal layers vertically align in the absence on an applied voltage. Ahiro also teaches that VA mode LCD have improved contrast, response and excellent viewing angle (see Ahiro column 1 line 67- column 2 line 7). Regarding the polarity voltage in adjacent picture element regions being different in claim 1 and polarity of voltage applied across the liquid crystal layer in a plurality of picture element regions belonging to one column among the plurality of picture elements regions is reversed for every n rows regarding claim 3. Kim US Patent 6342876 also discloses such a feature see cover figure and also regarding claim 4 see figure 4A. These are both well known in the art to reduce flicker. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to reverse the polarity between adjacent picture elements in Kubo's invention (US Patent 6710825)

because this reduces flicker and also use a liquid crystal layer that vertically aligns in the absence of voltage because this will improve contrast, response, and viewing angle.

Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6710825 in view of Yamada US Patent 5668651. The patent 6710825 discloses all the limitations of the claim except unit solid portions having a rectangular shape with generally arc shaped corner portions. Yamada discloses a unit solid having an arc shaped corner portion and a rectangular shape to improve viewing angle characteristics (see figure 5 and column 3 lines 1-6). Therefore at the time of the invention it would have been obvious to incorporate a unit solid portion having a rectangular shape with arc shaped corners in with the invention of patent 6710825 in order to improve viewing angle characteristics.

Claim 8 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6710825 in view of Nara et. al US Patent 6339462. The only limitation Patent 6710825 does not disclose is a unit solid portion with acute angle corners. Nara discloses a unit solid portion with acute corners (see figure 9A , C, D) in order to provide a better viewing angle and capable of displaying high precision bright images (column 6 lines 4-12) Therefore at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a unit solid portion with acute corners in the invention of US Patent 6710825 in order to provide a better viewing angle and high precision bright images.

Claim 13 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6710825 in view of Kondo US Patent 6115098. All the limitations of claim 6 are met by the patent except a thickness of the LC layer defined by a first protrusion protruding from the second substrate into the liquid crystal layer. Kume discloses a thickness of the LC layer defined by a first protrusion protruding from the second substrate into the liquid crystal layer (see figure 1). This is well known in the art to create a uniform spacing between the substrates. Therefor at the time of the invention it would have been obvious to one of ordinary skill in the art to use a thickness of the LC layer defined by a first protrusion protruding from the second substrate into the liquid crystal layer because this provides a uniform gap between the substrates.

### ***Allowable Subject Matter***

Claim 14-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: There is no prior art that teaches a plurality of open regions that do not overlap with the first electrode and when a second voltage is applied between the first electrode and second electrode, the LC layer forms a plurality of additional liquid crystal domains

in the plurality of open regions by the inclined electric field with each of the additional liquid crystal domains taking a radially inclined orientation.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu  
Examiner  
AU 2871

PL

  
KENNETH PARKER  
PRIMARY EXAMINER